

P A T E N T
Docket No. 514572000100

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claim 1 (Currently amended): An integrated microarray device, which device comprises a substrate comprising a plurality of distinct microlocations and a plurality of microarray chips, wherein the number of said microlocations equals to or is more than the number of said microarray chips, and wherein ~~the microlocation(s) is thermally insulated by an inert gas~~ the microlocations are in a well format and:

a) all of the wells are connected to each other by thin girders and the thin girders and inside and outside walls of the wells form a space to contain an inert gas to thermally insulate adjacent wells from each other: or

b) each of the wells has a space within walls separating the wells on four sides of the well in a same plain and the space contains an inert gas to thermally insulate adjacent wells from each other.

Claim 2 (Original): The device of claim 1, wherein the substrate comprises silicon, plastic, glass, ceramic, rubber, polymer or a composite thereof.

Claim 3 (Previously presented): The device of claim 2, wherein the substrate comprises a silicon and the silicon is silicon dioxide or silicon nitride.

Claim 4 (Original): The device of claim 1, wherein the substrate comprises a surface that is hydrophobic or hydrophilic.

Claim 5 (Original): The device of claim 1, wherein the substrate comprises a surface that is porous or nonporous.

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Claim 6 (Original): The device of claim 1, wherein the microlocations and/or the microarray chips are fabricated on the substrate.

Claim 7 (Original): The device of claim 1, which comprises $(12)_n$ number of microlocations, wherein n is an integer that is at least 1.

Claim 8 (Original): The device of claim 1, wherein the microlocations are evenly or unevenly distributed on the substrate.

Claim 9 (Previously presented): The device of claim 1, wherein the number microlocations and the distance between each microlocations are the same as to a standard microtiter plate.

Claim 10 (Canceled)

Claim 11 (Currently amended): The device of claim ~~10~~ 1, which comprises $(12)_n$ number of wells, wherein n is an integer that is at least 1.

Claim 12 (Currently amended): The device of claim ~~10~~ 1, which comprises 96, 384 or 1,536 wells.

Claim 13 (Currently amended): The device of claim ~~10~~ 1, wherein the wells have a geometry selected from the group consisting of circle, oval, square, rectangle, triangle and other irregular shape(s).

Claim 14 (Currently amended): The device of claim ~~10~~ 1, wherein the wells have identical or different shapes.

Claim 15 (Original): The device of claim 1, wherein at least one of the microlocations is in fluid contact with a fluid source or fluid passage outside the device.

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Claim 16 (Original): The device of claim 1, wherein all of the microlocations are in fluid contact with a fluid source or fluid passage outside the device.

Claim 17 (Original): The device of claim 1, wherein at least two of the microlocations are in fluid contact with each other.

Claim 18 (Original): The device of claim 1, wherein all of the microlocations are in fluid contact with each other.

Claims 19-23 (Canceled)

Claim 24 (Currently amended): The device of claim ~~23~~1, wherein the inert gas is air.

Claim 25 (Canceled)

Claim 26 (Original): The device of claim 1, wherein each of the microlocations comprises a microarray chip.

Claim 27 (Original): The device of claim 1, wherein the microarray chips have identical or different densities.

Claim 28 (Original): The device of claim 1, wherein the microarray chips have a density of $(100)_n$ spots/cm², wherein n is an integer that is at least 1.

Claim 29 (Original): The device of claim 1, wherein at least one of the microarray chips has a density that is less than or equals to 400 spots/cm².

Claim 30 (Original): The device of claim 1, wherein all of the microarray chips have a density that is less than or equals to 400 spots/cm².

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Claim 31 (Original): The device of claim 1, wherein at least one of the microarray chips has attached thereto a plurality of moieties.

Claim 32 (Original): The device of claim 31, wherein the microarray chip(s) has attached thereto a plurality of moieties on facing up or down direction.

Claim 33 (Original): The device of claim 31, wherein each of the moieties is selected from the group consisting of a cell, a cellular organelle, a virus, a molecule and an aggregate or complex thereof.

Claim 34 (Previously presented): The device of claim 33, wherein the moiety is a cell and the cell is selected from the group consisting of an animal cell, a plant cell, a fungus cell, a bacterium cell, a recombinant cell and a cultured cell.

Claim 35 (Previously presented): The device of claim 33, wherein the moiety is a cellular organelle and the cellular organelle is selected from the group consisting of a nuclei, a mitochondrion, a chloroplast, a ribosome, an ER, a Golgi apparatus, a lysosome, a proteasome, a secretory vesicle, a vacuole and a microsome.

Claim 36 (Previously presented): The device of claim 33, wherein the moiety is a molecule and the molecule is selected from the group consisting of an inorganic molecule, an organic molecule and a complex thereof.

Claim 37 (Previously presented): The device of claim 36, wherein the moiety is an inorganic molecule and the inorganic molecule is an ion selected from the group consisting of a sodium, a potassium, a magnesium, a calcium, a chlorine, an iron, a copper, a zinc, a manganese, a cobalt, an iodine, a molybdenum, a vanadium, a nickel, a chromium, a fluorine, a silicon, a tin, a boron and an arsenic ion.

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Claim 38 (Previously presented): The device of claim 36, wherein the moiety is an organic molecule and the organic molecule is selected from the group consisting of an amino acid, a peptide, a protein, a nucleoside, a nucleotide, an oligonucleotide, a nucleic acid, a vitamin, a monosaccharide, an oligosaccharide, a carbohydrate, a lipid and a complex thereof.

Claim 39 (Original): The device of claim 1, wherein at least two of the microarray chips have attached thereto a plurality of moieties.

Claim 40 (Original): The device of claim 39, wherein each of the microarray chips has attached thereto same type or different type of moieties.

Claim 41 (Original): The device of claim 1, wherein each of the microarray chips has attached thereto a plurality of moieties.

Claim 42 (Original): The device of claim 1, wherein at least one of the microlocations comprises a temperature controller.

Claim 43 (Original): The device of claim 42, wherein each of the microlocations comprises a temperature controller.

Claim 44 (Original): The device of claim 42, wherein each of the temperature controller is individually controllable.

Claim 45 (Original): The device of claim 42, wherein the temperature controller is selected from the group consisting of a resistive heater, a bidirectional semiconductor temperature controller, a ceramic heater and an infrared heater.

Claim 46 (Original): The device of claim 1, wherein the substrate is an unitary unit.

Claim 47 (Original): The device of claim 1, wherein the substrate is an assembled unit, which can be disassembled into at least two parts.

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Claims 48-54 (Cancelled).

Claim 55 (New): The device of claim 1, which comprises multiple spaces that contain the inert gas and the multiple spaces are evenly distributed.